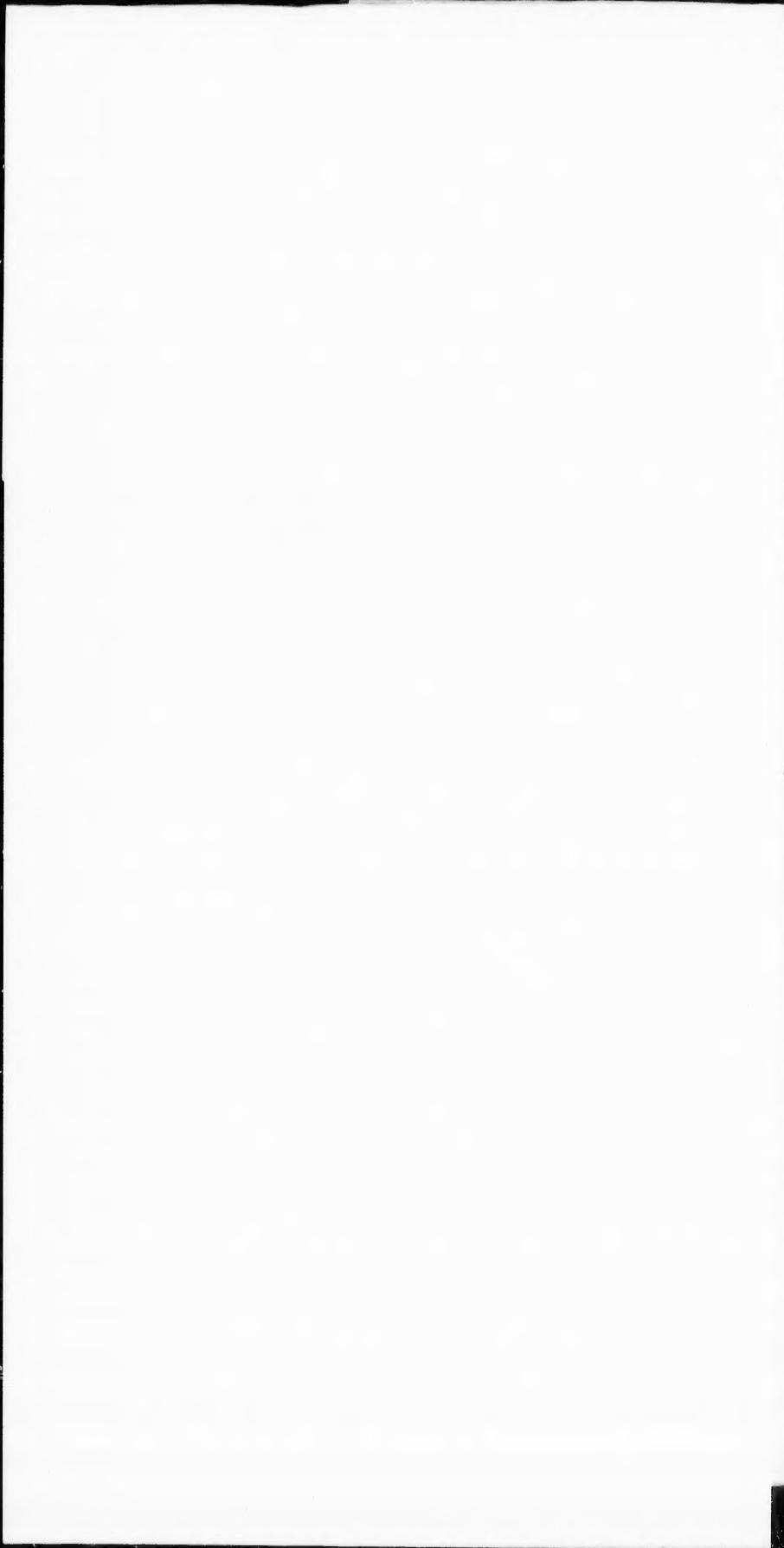




REPORT
OF
COLONEL G. H. GRATIOT,
ON THE
REAR PORTION OF THE RYAN LOCATION,
AT MAMAINSE.

EDWARD RYAN, Esq.

SIR,

I beg leave to submit to you the following, as the result of my examinations of the Veins situated in the interior upon the E. Ryan Location at Mamainse, North East Shore of Lake Superior.

VEIN No. 1

Will be found at the termination of the trail, entering the interior at the cabin, upon the Lake Shore, at a distance of about two miles from the Coast. It occurs in Trap with a Veinstone of Amygdaloid and Calcareous Spar intermixed, embracing a width between the outer walls of eight feet. It was first observed to outcrop upon the western extremity of a ridge or elevation of rock some thirty feet above the general surface, and was seen to pursue a course parallel with the ridge, with a bearing of S. 44° E. A shaft has been sunk on this Vein to the depth of six feet, the Vein at this depth being ascertained to retain its width from the surface dimensions, and to be decidedly Metalliferous, producing promising specimens of the Grey and Yellow Sulphurets of Copper.

VEIN No. 2

Occurs about one fourth of a mile in a northerly direction from Vein No. 1, in a perpendicular cliff of Green Stone Trap of twenty feet, having a course of S. 40° E. It was observed to boldly enter the cliff nearly at right angles to the face of the knob; it is composed of Calcareous Spar with lines of Quartz; where it first makes its appearance upon the brow of

the cliff it only exposes a width of a few inches, but upon removing the detached soil and rock which had accumulated at the base, it was seen to present a very favorable appearance having increased in dimensions in its descent, showing at a depth of ten feet from the surface a well defined width of three feet; the latter fact should properly be considered as a favorable indication rendering it conclusive that it should be regarded as a true and promising Vein.

VEIN No. 3

Makes its appearance in a knob of Greenstone Trap elevated about fifty feet above the general surface, and situated some half mile southerly from Vein No. 1; the Veinstone is made up of Calcareous Spar and Quartz, the former predominating and presenting an exceedingly well defined width of three feet. The course of this Vein is very nearly parallel with those before mentioned, being S. E. and N. W. or S. 45° E.; adjoining the north wall rock the Vein is principally Quartz, while the middle and south portion is composed of small bunches and zig-zag Veins of Calcareous Spar, the latter irregularly crossing the surface of the Vein. Carbonate of Copper was ascertained to exist in this Vein under favorable circumstances; the wall rocks are perfect. This Vein should be regarded as decidedly promising.

VEIN No. 4

Has a width of two feet, and a course of S. 70° E. with a Veinstone similar to the above mentioned Veins, having promiscuously Quartz and Calcareous Spar; it is found separated by a distance of some half mile in a southerly direction, on an uplift of Trappean rocks elevated about thirty feet. The Vein was observed to pursue a course parallel with the course of the cliff it occurred in, being distinctly marked by a small dell or depression in the surface, and was found to produce, immediately upon the surface, exceedingly rich and promising specimens of the Yellow Sulphuret and Carbonate of Copper.

The position of these Veins in the interior was observed to correspond in the main with many of those upon the coast. So great is

the identity, under certain circumstances, as to lead to the presumption that they are continuous Veins of some of the Veins outcropping upon the Lake Coast. This I conceive to be a very important fact which being conclusively settled, fully establishes the fact of the value of this Location, and affords additional assurance of its importance. Those Veins occurring immediately upon the coast of the Lake, cannot be regarded of much importance unless they should be traced inland, and their position be determined in the more elevated lands in the rear. The ingress of the water from the Lake will be a serious difficulty to be encountered in sinking of shafts adjacent to the coast.

South and north of Vein No. 4, we discovered *eight* Veins varying in width from eight inches to five feet, and all carrying Grey Sulphuret, Yellow Sulphuret and Native Copper; owing to our limited time we could do no work on those Veins.

VEINS 13, 14, & 15

Situated in the bed of a small stream about three miles from the coast. Vein 13 is one foot wide, Vein Stone, Calcareous Spar and Quartz, carrying the Grey Sulphuret of Copper. Vein 14 is one and a half feet in width, Vein Stone, Calcareous Spar and Quartz, carrying the Grey Sulphuret. Vein 15 is three feet wide and about one and a half miles from Vein 13, in a north direction, Veinstone, Calcareous Spar and Quartz carrying Grey and Yellow Sulphurates of Copper; the course of these Veins is very nearly parallel with those before mentioned, being S. 45° E.

The Veins previously mentioned and designated by numbers, are separated from the Lake by a distance of from two to three miles, and when seen at the surface are elevated from four to five hundred feet above the level of the Lake; to certain extent spontaneous drainage can be effected in their further development.

In one instance the ore was ascertained to exist as abundant and as promising upon the surface of the Vein inland, as of those taken from the shore of the Lake. The experience of centuries has taught us that in Copper

Veins the deeper we go the richer the ore. Why is it not fair to suppose that the same quality of ore will be found at the depth of one hundred feet from the surface in the former that will appear in the latter, although the one in reality is elevated four hundred feet above the other.

The wall rocks of the Veins described, as far as my observation extended, were found to have a firm, compact base; it is accordingly believed but little difficulty will be encountered from the flow of surface water.

During the exploration of the interior, several less perfect Veins were discovered independent of those separately mentioned, and it is believed a more minute examination will lead to the discovery of others as important as those already seen.

The country rises rapidly as you recede from the Lake Coast, attaining an altitude of probably three hundred and fifty feet in one miles distance. The hill side fronting the Lake has a thin soil, barely sufficient to conceal the Trap Rocks underlaying, supporting an inferior growth of principally evergreens and birch.

From the summit of the first row of hills, still further inland, the country has a more gradual ascent, and is characterized by the frequent occurrence of insulated knobs of Trap having an elevation of from thirty to eighty feet above the general level.

The soil is more fertile and will be found to sustain an exceedingly handsome and thrifty growth of sugar maple timber, abundantly sufficient to render it expedient to smelt the ore upon the ground, thereby avoiding a very important item to be deducted from the profits of mining, which occurs when it has been found necessary to transport the Ore to fuel.

The country retains the same interesting appearance to the eastern boundary of the Location; the Location is divided in the rear by a considerable sized stream, amply sufficient for any water power required in mining or smelting.

Respectfully your obedient servant,

C. H. GRATIOT.

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